R E M A R K S

The Office Action issued February 4, 2003 has been received and its contents have been carefully considered.

The indication that claims 2-10 and 12 contain allowable subject matter is noted with appreciation. However, it is believed that independent claims 1 and 11 also define an invention which is patentable over the cited prior art.

Claim 1 has been rejected under 35 USC §102(b) as being anticipated by the U.S. Patent No. 4,713,819 to Yoshikowa and claim 11 has been rejected under 35 USC §102(b) as being anticipated by the U.S. Patent No. 5,401,099 to Nishizawa et al. These two rejections are respectfully traversed for the reasons given below.

On page 2 of the Office Action, the Examiner refers to column 2, lines 6-56 of Yoshikowa. This passage describes a method for testing a photodiode prior to using it for the stabilization of a laser diode. Note for example, lines 14-16 of this passage which state:

> "Discrimination circuit 6 compares the voltage drop across photodiode 2 to a reference voltage to check whether or not the photodiode is normal."

In contrast, claim 1 of this application concerns a method for stabilizing the output light power of an LED or laser diode. Not only is testing completely different from the stabilization, but photodiodes are different from LEDs and laser diodes. LEDs and laser diodes are components which emit light whereas photodiodes respond to light. These functions are perhaps complementary, but they must not be confused.

Therefore, there is no relationship between the method steps described by Yoshikawa and the subject matter of claim 1. The fact that Yoshikawa uses a photodiode to stabilize light emitting components does not establish one; neither does the fact that, in both cases, a voltage and a current are involved.

Nishizawa et al. disclose a method to measure the temperature of any type of diode without having to use any temperature sensitive component aside from the diode itself. This method includes a preparatory stage where current/voltage characteristics at constant temperatures are measured.

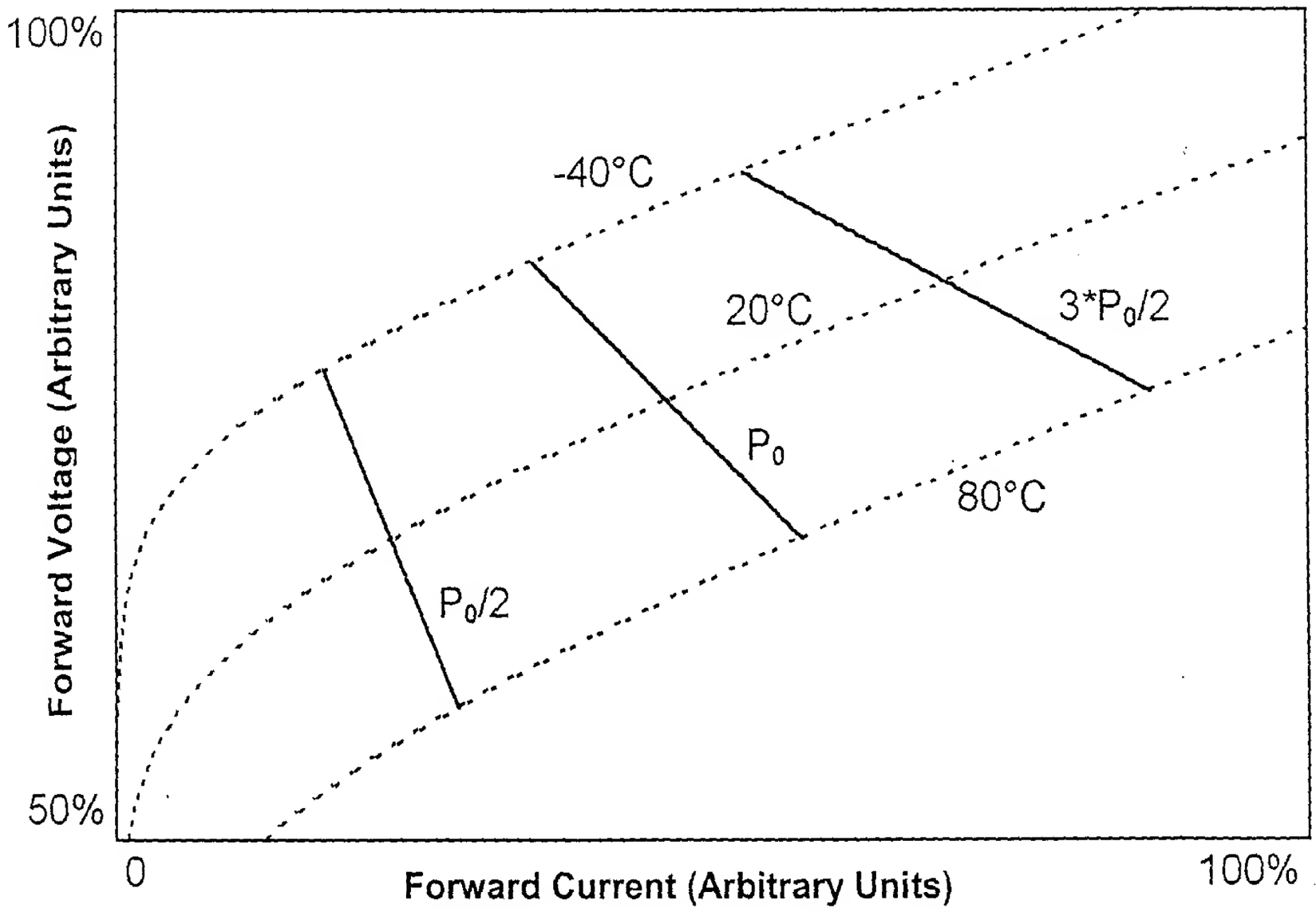
Claim 11 refers to a preparatory stage of a method for stabilizing the optical output power of a diode where

current/voltage characteristics at constant values of optical output power are measured.

These method steps can easily be confused since the diagrams into which there resulting curves are to be entered appear similar - one axis for forward current, the other one for forward voltage. However, the curves which are entered into these diagrams are quite different.

If Nishizawa et al. use a diode which emits light for their preparatory measurement, the emitted light will change along the curve obtained since the temperature is kept constant. With a curve obtained from a measurement according to claim 11, the temperature changes.

Examples of curves obtained with both kinds of measurement are given in Fig. 4 to Fig. 9 of the present application. For convenience, one of these diagrams is reproduced below. The dotted lines represent results from a measurement according to Nishizawa et al., whereas the solid lines result from a measurement according to claim 11 of the present application.



Both types of curves are current/voltage characteristics, but they differ in the parameter which is kept constant. Nishizawa et al. cannot anticipate a measurement according to claim 11 since there is no method step to determine the emitted light power provided. Without this step, it is impossible to determine a curve of constant emitted light power regardless how the measurement is performed.

As stated on page 7, first paragraph, of this application, it is the objective of the present invention to provide a circuit for a light emitting diode or laser diode such that the changes in electrical behavior caused by the temperature lead to temperature-independence of its optical output power.

Together with the previously described state of the art (page 2, second paragraph, to page 4, first paragraph) and the mentioned disadvantages of the traditional methods, it is clear that "electrical behavior" means: There must be no non-electrical quantities which have to be taken into account. The non-electrical quantities that are especially significant and disadvantageous are:

First: The emitted light power (an optical quantity); and

Second: The temperature (a thermal quantity), regardless of whether this be the temperature of the diode itself or the ambient temperature or something else.

The prior art explains what "taking into account" means:

Either: having to measure one of these quantities;

Or: having to control one of these quantities.

Stabilizing the optical output power by measuring and controlling the emitted light is difficult, slow and inaccurate; measuring the temperature of the diode is difficult, inaccurate and expensive; controlling the temperature is difficult, slow and very expensive; measuring the ambient temperature is very inaccurate although it is comparably ~~cheap~~ inexpensive.

A method which is meant to improve the state of the art by avoiding all of these disadvantageous steps and does, in fact, avoid them can, logically, not be anticipated by a method which incorporates one or more of these steps. A method (A) which is meant to avoid an action (1) when performing another action (2) cannot be anticipated by a method (B) to perform (2) by performing (1), simply because (B) is not a method to avoid (1) when doing (2). (B) is only a method to perform (2). Since method (A) also performs (2), one may ask whether it is advantageous to use (A) instead of (B), but not whether (A) is the same as (B). Of course it is not. The difference is the intention to avoid action (1) and this intention is new with respect to (B).

For similar but more obvious reasons, an automobile is not anticipated by any animal-drawn vehicle regardless what

characteristics, aside from being drawn by animals, the vehicle has. A vehicle that is designed to be drawn by animals cannot be intended to not be drawn by animals; however, this latter intention is what is new with an automobile, it even gives it its name ("self-moving"). Both are means to travel without having to walk. Of course, an automobile can also be drawn by a horse, but it is not intended to be; it is even intended <u>not to be</u> and therefore it is not anticipated by a stagecoach, for example. This does not yet mean that an automobile is better than a stagecoach, but in any case it means that it is different from a stagecoach. This difference - being the intention not to need any draught animals - extends over all animal drawn vehicles, and so no animal-drawn vehicle needs to be checked for further characteristics which might make it anticipate an automobile.

Similarly, no method to stabilize the optical output power of light emitting diodes or laser diodes which incorporates means to measure or control at least one non-electrical quantity can anticipate the method of the present invention, since this is a method to stabilize the power <u>without</u> measuring or controlling any non-electrical

quantity. A method that does so can be as good, maybe even better, but it cannot anticipate the method of the present invention.

This intention of not having to take any non-electrical quantities into account can only be satisfied during operation of the light emitting diode or laser diode. Before it can be operated with constant optical output power, a preparatory method step must be performed which does involve non-electrical quantities: At least the optical output power must be measured.

Claims 11 and 12 of this application refer to different ways of performing this preparatory step. This is not related to the actual process of stabilizing the diode. Therefore, characteristics of another method which are similar to the characteristics mentioned in claims 11 and 12 cannot affect claims 1 to 10, the subject of which is the stabilization during operation itself.

In conclusion, claim 11 has been rejected on the basis that Nishizawa et al. also disclose a method for measuring the current/voltage characteristics of diodes at different temperatures. It is believed that the method step in claim 11 of "maintaining the emitted light power at a constant

level", which is not disclosed by Nishizawa et al., is an important and unobvious step because it leads to the insight that the optical power of a light emitting diode or laser diode can be derived solely from its forward voltage and forward current, and therefore can be stabilized with the knowledge of only these quantities. This insight, in turn, leads to a method which can be implemented with stunning simplicity (Figure 3/claim 6); so simple, in fact, that it is hard to believe that this was not invented long ago. It would indeed have been invented before if this step of keeping the light power constant when measuring current/voltage characteristics were "obvious" in the sense of Patent Law. Accordingly, the subject matter of claim 11 is believed to patentable over Nishizawa et al.

The considerations with respect to claim 11 do not apply to claim 1. The rejection of claim 1 is based on two inaccuracies: First, an optical receiver is not the same as an optical emitter. The subject matter of claim 1 concerns a method for stabilizing an optical emitter with no optical receiver at all. Second, an initial test procedure is not to be confused with the process of operating a component. The present invention does not include any procedure for

testing whether a component is normal or not. Claim 1 is clearly related to stabilizing an optical output power which must be done during operation and has nothing to do with testing a component before it is operated.

Accordingly, it is believed that both claim 1 and claim 11 are neither anticipated by nor obvious over the patents to Yoshikawa and Nishizawa et al., respectively.

This application is therefore believed to be in condition for immediate allowance. A formal Notice of Allowance is accordingly respectfully solicited.

Respectfully submitted,

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Date April 29, 2003